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INFLUENCE OF FRIENDSHIP ON MOTIVATION
AND ACADEMIC ACHIEVEMENT

being

A Field Study Presented to the Graduate Faculty
of the Fort Hays State University in
Partial Fulfillment of the Requirements for
the Degree of Education Specialist

by

Anna Dechant

M.S., Fort Hays State University

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Approved_____

Major Professor

Approved_____

Chair, Graduate Council

The research described in this thesis utilized human subjects. The thesis prospectus was therefore examined by the Human Subjects Research Committee of the Psychology Department, Fort Hays State University, and found to comply with Title 45, Subtitle A - Department of Health, Education and Welfare, General Administration; Part 46 - Protection of Human Subjects.

Date

Ethics Committee Chairman

ABSTRACT

Research has shown that friendship, along with motivation, can impact the cognitive development and academic achievement of students in varying ways. As a result of the increase in attention nationwide on student achievement and the positive outcomes that result from academic success, knowing the influences of age, friendship quality, various aspects of friendship, and motivation on academic achievement can only serve to enhance student achievement outcomes, and therefore success in adulthood. The present study examined the variables of age, grade level, and friendship quality, including specific aspects such as conflict and closeness, length of friendship, and time spent with friends, in relation to the variables of motivation and academic achievement. The sample for the current study was made up of 93 5th and 8th grade students, ages 10-14. Of the participants, 46 were male and 47 were female. Friendship quality was found to be significantly predictive of both overall motivation and intrinsic motivation. Additionally, age was found to be significantly predictive of academic achievement in both reading and math, and conflict was found to be significantly and positively predictive of academic achievement in math. Further, intrinsic motivation was found to differ among grade levels, with 8th graders having significantly lower levels of intrinsic motivation when examining the influence of friendship quality and grade on intrinsic motivation, as did academic achievement when the influence of friendship quality and grade on academic achievement in reading and math was examined, with 8th graders scoring significantly higher on both.

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INTRODUCTION

Friendships play a significant and important role throughout the course of one's life. For instance, friendships offer many benefits both emotionally, physically, and intellectually, even such that individuals with strong friendships may be more resistant to illness and may lead longer lives (Parker-Pope, 2009). Not only do individuals benefit from the effects of friendships, but also friendships serve a number of purposes, with those purposes varying from individual to individual and changing over time. As reported by Hartup & Stevens (1999), "friends foster self-esteem and a sense of well-being, socialize one another, and support one another in coping with developmental transitions and life stress" (p.76). Childhood friendships look very different from adolescent friendships, and adolescent friendships look very different from adult friendships, however the influence of all can undoubtedly be far reaching and long lasting. Research has implicated that it is not grades or classroom behavior that best predicts adult adjustment, but rather how well children get along with other children (Hartup, 1992a). For children in particular, friendships are sources of companionship, motivation, physical support, ego-support, social comparison, intimacy, and affection, all of which differ in degree of importance depending upon the particular time of development (Schwartz, 2009). More concisely, four main functions of friendship have been identified: emotional resources, cognitive resources, social skills resources, and forerunners of future relationships (Hartup, 1992a).

Hartup and Stevens (1999) cite that the occurrence of friendships throughout the life-span is quite high. An estimated 75% of preschool age children have mutual friendships, and about 80-90% of teenagers have mutual friendships consisting of one or

two best friends and several good friends. In addition, they note that the percentage of people who have mutual friendships continues to be high through adulthood, but begins to decrease in old age, although, there are a greater number of older persons who have friends than who do not have friends.

Further, the number of friends one has varies in amount according to both age and gender (Hartup & Stevens, 1999). During the nursery and preschool years, boys typically have more friends than girls, whereas girls' networks of friends tend to be more exclusive, hence one of the reasons that they are smaller. However, this situation is reversed in adolescence with boys having smaller more exclusive networks of friends than girls, and this continues to be the norm into early adulthood. In addition, time spent with friends is highest during middle childhood and adolescence, with teenagers spending up to a third of their time awake in the presence of their friends (Hartup & Stevens, 1999). As can be assumed with increases in age and therefore increases in responsibility and the overall demands of life, the percentage of time individuals spend with their friends decreases quite significantly to about ten percent during adulthood (Hartup & Stevens, 1999).

Therefore, because of the amount of time typical children or adolescents spend in the company of friends each day, the influence of friendships on social, as well as academic performance can be significant. For this reason, the relationship between friendship and academic achievement could prove to be a critical factor in both the early and later years of cognitive development, which may adversely affect academic performance and subsequently future academic outcomes and achievements well into

adulthood. Consequently, it is of great interest how friendship and its many different characteristics affect academic performance throughout all stages development.

Many theorists believe that friendships are developed through predictable and progressive stages. Damon (1977;1983) separated friendships into three particular stages: (Stage 1) friendship as a handy playmate, (Stage 2) friendship as assistance and mutual trust, and (Stage 3) friendship as intimacy and loyalty. In the first stage, during the ages of four and seven years, friendship is characterized by playmates who live close by and have nice toys, with little to no recognition of individual perspectives or personality traits. In the second stage, which encompasses the ages of seven to ten years, children start to understand reciprocity and gain an awareness of other children's feelings. And, in the third stage, for children between nine and twelve years of age, friendship is based on reciprocity, and trust, which is considered to be a characteristic of mature friendships, appears for the first time. It is also at this age when conflict between friends is no longer easily resolved and instead requires apologies and explanations.

Apologies and explanations become necessary because friendships have become more significant and multifaceted and the function of friendship has evolved from sharing toys to relying upon one another for emotional support. As such, the nature of the conflict, as well as the way the parties involved approach conflict, changes significantly due to the shift in expectations of friendship from something on a material level to something on a deeper, more personally, emotional level. As friendships mature through adolescence, the characteristics of trust, intimacy, and empathy become more important, making it such that conflict begins to resonate on a deeper, more personal level because

of the emotional vulnerabilities involved. In discussing conflict between friends Irwin (1993) stated:

In adolescence reciprocity is transformed to encompass the notion of a shared identity; a sense of mutuality, of 'we' rather than 'you' and 'me'. Loyalty, support and the sharing of burdens and secrets become significant. When such relationships are violated this must be acknowledged before they can be repaired. (p.48).

Moreover, adolescent friendships provide needed developmental structures that are beneficial to the psychological health and competence of individuals at this age. These developmental structures include the ability to explore the self and acquire a deeper understanding of another individual, offer support in handling the stresses of everyday life, and improve attitudes toward and interest in school (Schwartz, 2009). Hartup (1983), notes that as individuals increase in age, increases also occur in the number of interpersonal constructs that they use with friends. Hartup elaborates, citing that this is especially true with regard to the ease and accuracy with which interpersonal constructs are used, the complexity of the information individuals have about their friends, and the identification of specific qualities and characteristics of friends as compared to nonfriends or acquaintances. Given the evolution of friendships as children age, it might be beneficial to examine whether children of different ages and at different grade levels exhibit differences in friendship quality, length of friendship and time spent with friends. The research reviewed here will lead one to conclude that as children age the ratings of friendship quality would be higher and length of friendship and time spent with friends would be greater.

While friendship plays a very large and important role in the social and emotional development of children that lasts well into adulthood, academic achievement also has been shown to influence future outcomes. At present, children spend the majority of their time in school, and it is well known that cognitive development is most crucial during the first few years of school. Just as children's social customs are taught and fostered through social interaction with others, academic achievement can be affected by those with whom children socialize. This idea is supported by the fact that one of the four main functions of friendship is that of cognitive resources (Hartup, 1992a). It is widely known that cognitive development of children and their academic achievement greatly affects numerous future outcomes, for example, success in college, the ability to get a good job, and the amount of money one earns (Johnson, 2000). This knowledge makes it important that the influence of friendships on cognitive ability and academic achievement be considered. Knowing the influence friendships have not only on the social functioning and development of children, but also on the cognitive development and academic achievement of children, could serve to only increase their chances of having successful outcomes in the future.

While education has always been deemed important throughout our nation's history, it is plausible to say that at present, education, and academic achievement have received more attention and have reached a level of importance higher than ever before. Due to competition with and concerns over how the United States ranks compared to other countries in the world regarding both the quality and outcomes of our educational system, there has become an obsession with increasing test scores, lowering drop-out rates, and leaving no child behind which is reflected in recent legislation such as the No

Child Left Behind Act of 2001. While the intention behind this obsession may be somewhat misplaced, one cannot dispute wanting success for all students, nor dispute the argument that higher levels of academic achievement lead to more opportunity, and will benefit both our students and society as a whole. Hodgkinson (1995) reports correlations between low achievement and a lack of resources, as well as correlations between low socioeconomic status and achievement. Given such correlations, one might conclude a number of logical outcomes that result from higher levels of academic achievement. For example, students who are academically successful are more likely to go to college and attain college degrees, are likely to be more marketable and enjoy a wider variety of job opportunities, are likely to be more financially well off due to higher paying jobs, and have greater levels of stability. Moreover, their future children are more likely to have academic and social advantages than those less fortunate, and have greater access to a variety of services, such as healthcare and goods that increase overall quality of life. There are many different factors that contribute to academic achievement, intelligence being only one component. In addition to intelligence, other logical external such factors as parenting, school culture, classroom environment, and interpersonal relationships each have a level of influence on academic achievement. Outside of these influences, factors existing on more of a personal, innate level, such as individual motivation, engagement in learning, desires to learn, and effort to learn also affect academic achievement.

Before one can explore the effect of friendship upon any area of individuals' lives, including academic achievement, it is important to recognize that there are a multitude of friendship factors that can be examined. Therefore, when exploring the overall importance of friendship in the lives of individuals both socially and

academically, and the relationship between, various friendship faculties must be taken into consideration. Such faculties may be comprised of the quantity of friendships, the quality of friendships, and the nature of relationships with friends, for instance whether the friendships are of an egalitarian nature or whether there is a discrepancy in who holds the power in the relationship.

It is essential that a definition of “friend” be established, for as suggested previously, there are many different characteristics that one can assign to “friends” and each can differ both among individuals and across age groups. For instance, for some friends may simply be acquaintances with whom their interactions are of a very surface nature, and for others friends may be those with whom they have shared exclusive personal information. In order to appropriately analyze and interpret research in the area, and conduct research in a way in which the outcomes are measured as desired, the definition assigned to “friends” is crucial.

A significant amount of research conducted pertaining to the influence of friendship on academic performance and academic achievement has defined friendships, or what constitutes “friends” in a number of ways. Many have utilized sociometric status as a marker of friendship. Sociometric status refers to whether a children are considered to be “popular”, or well-liked and accepted by their peers, “neglected”, or not even noticed by their peers but not disliked by peers, or “rejected”, such they are seen as a social outcast and are disliked by their peers (Wentzel & Asher, 1995).

Other studies have utilized peer acceptance, which refers to the degree to which members of a particular peer group, those in children’s classrooms for example, like or dislike children, as a marker of friendships. Other studies have assessed friendships

simply in terms of whether children belong to groups, or how many friends they have, without necessarily taking into consideration the quality of those friendships. Yet others have observed friendships primarily on the basis of the quality of friendships.

Friendships differ qualitatively in regard to 1) their content, or what the friendship is based upon or the activities engaged in, 2) their constructiveness, or how effectively conflict is addressed and resolved, 3) their closeness, or rather how much time is spent together, 4) their symmetry, or the amount of power each holds in the relationship, and 5) in their affective substrates, or the overall nature of the friendship (i.e. supportive and secure or non-supportive and conflict ridden) (Hartup, 1996).

No matter the definition utilized, there is a vast amount of support across the studies illustrating the link between friendship and a multitude of various outcomes, including academic achievement. For the purposes of this study, “friendships” will be considered those relationships that are voluntary and egalitarian. The individuals in the friend relationship see themselves as equals with no overwhelming power differential existing between the two. Friendships will be those that are reciprocal in nature, meaning that both parties affirm that the other is indeed considered a friend, and are characterized by mutual affection. Participants will be asked to identify a friend who, when asked, would affirm that they too see view the participant as a friend, with whom they share the same amount of power within the relationship, and with whom they each share a genuine fondness for one another and each care for the other’s well-being.

Research has suggested that having friends is extremely important in the lives of children and adolescents, and can have long lasting and far reaching effects across a multitude of areas. These effects may have both an indirect and a direct impact upon

academic achievement. Friends may have a direct impact on other's academic performance through teaching and modeling of academic skills (Schunk, 1987; Sieber, 1979). Conversely, the affect may be indirect with social and emotional factors contributing to social and academic competencies (Wentzel & Caldwell, 1997). For example, research indicates friendlessness to be more common among those individuals who obtain clinical assistance for emotional and behavior problems than those who are more well-adjusted individuals (Rutter & Garmezy, 1983). Similarly, many children who are referred for emotional and behavioral problems have no friends or have difficulties interacting with their peers (Schwartz, 2009). Because emotional and behavior problems can compound the stresses of everyday life, one can assume that functioning in socially and academically desirable ways becomes more difficult.

While friendlessness can influence emotional and behavioral states, emotional and behavioral states can also make acquiring and maintaining friendships very difficult. Moreover, children without reciprocal friendships report more loneliness than children with reciprocal friendships (Parker & Asher, 1993), and not being in reciprocal friendships in fifth grade has shown to be a predictor of negative feelings of self-worth during adulthood (Bagwell, Newcomb, & Bukowski, 1998). For children who have friends, those friendships contribute to the development of pro-social skills, help define self and self-worth therefore inspiring greater self-confidence, positively influencing school performance, and assisting in encouraging or discouraging deviant behaviors (Hartup, 1983; Schwartz, 2009). In support of this, research has shown that in middle school having reciprocal friendships increases levels of both prosocial behavior and academic achievement (Wentzel, McNamara, & Caldwell, 2004)

Because having both strong social skills and stable friendships contribute to higher levels of self-esteem, it is very likely that friendlessness will have an adverse impact upon a child's self-esteem. High self-esteem, thought to be increased by peer approval and lead to more pro social behavior, may be a contributing factor in attaining learning success (Wentzel & Caldwell, 1997). One can assume that poor self-esteem along with emotional or behavioral problems and the resulting consequences of each, are likely to indirectly affect numerous areas of individuals' lives, including the classroom and performance on academic tasks.

Indeed, Alves-Martins, Peixoto, Gouveia-Pereira, Amaral, & Pedro (2002) report that students who have low levels of academic achievement assign less importance to school-related areas, and exhibit less favorable attitudes toward school, demonstrating the potential for a vicious cause and effect between self-esteem and academic achievement. Students who perform at an academic level lower than their peers may already have lower self-esteem because they feel as though they are not smart enough in comparison to other students and do not seem to place as much value upon their self-worth. Because of the combination of the overwhelming difficulty and frustration they experience as a result of learning and low self-esteem, it is likely that as a means of coping, such students will view school less favorably, develop a self-defeating attitude, and attribute little importance to school. These attitudes in return will cause additional difficulties, and potentially negative behaviors in the classroom that will continue to have a detrimental effect on academic achievement, thus contributing to the student's already low self-esteem and feelings of negative self-worth. When coupled with the low self-esteem that

students may also have because of a lack of friends, this contribution is incredibly concerning.

Likewise, more direct links between friendship, including peer status and academic achievement appear to exist. Evidence illustrates that friends provide one another with cognitive and social scaffolding that is different from what non-friends provide (Hartup, 1996). Hartup (1992a) identified that teaching may occur among peers in many different forms, including peer tutoring, cooperative learning, peer collaboration, or even peer modeling. Although, it has yet to be established whether friends are indeed better tutors than nonfriends, or in what ways friendships influence cooperative learning and modeling. However, research has proposed that when collaboration occurs among friends more mastery of certain tasks is achieved than during collaboration between nonfriends (Hartup, 1992a). This may be due to the tendency of friends to talk more, spend more time working out differences, and be more willing to compromise (Hartup, 1992a). More specifically, it has been discovered that social interaction is positively associated with reading engagement, as well as the use of cognitive strategies (Guthrie, Schafer, Wang, & Afflerbach, 1995)

Further, research suggests that academic achievement and peer social interactions are related, even in first-grade students. Popularity and the friendship of similar peers are related to student academic achievement (Estell, Farmer, Cairns, & Cairns, 2002). Consistent with the other findings reported here, popular status and acceptance are associated with successful academic performance and rejected status and lower levels of acceptance are associated with academic difficulties (Wentzel, 1991). For instance, elementary-aged children who are popular with their classmates tend to do better

academically than those who are not well accepted (Austin & Draper, 1984), with those who are unpopular at a greater risk for dropping out of high school (Parker and Asher, 1987).

Of related importance, some studies have even alluded to the fact that merely belonging to a particular group is related to academic performance (Wentzel & Caldwell 1997), and that rejected children are more vulnerable to negative outcomes such as delinquency, criminality, substance abuse, difficulty sustaining attention, school dropout, conduct disorder, and needing mental health services (Kupersmidt & Coie, 1990; Parker and Asher, 1987). Moreover, throughout research rejection has consistently been associated with poorer academic achievement (Austin & Draper, 1984), with peer rejection even predicting less classroom participation, which has been linked to having detrimental effects on academic achievement later (Ladd, Kochenderfer, & Coleman, 1997; Ladd, Birch, & Buhs, 1999). These findings suggest that peer acceptance provides for greater social inclusion, and a greater sense of belonging enhances both interpersonal and scholastic adjustment and achievement. As such, it could prove valuable to explore whether academic achievement differs based on overall level of closeness.

Similar to these results, it has been reported that even among Kindergarteners attitudes toward school are better for those students who have friends at the beginning of the school year and who maintain those friendships as opposed to the attitudes of those who do not, and that making new friends while in Kindergarten alone predicts improvements in school performance (Ladd, 1990). Knowing that the functions of friendship change and mature with increases in age, it is probable that the influence of

friendship on attitudes toward school become much more dependent on the existence of such a relationship, which is also likely to contribute to performance in school.

Additionally, some research has exhibited that simply having a friend or being well liked by peers may not be the only factor that has a degree of influence upon an individual's academic achievement, but also the nature of those relationships. Because it can be assumed that not all friendships are alike, with some being of an easy going, secure nature, and others being of a contentious and conflictual nature, the quality of friendship must also be examined in relation to academic achievement. For example, there is evidence to suggest that differences in the nature of friendships impact school adjustment, with those students who's friendships are characterized by competition and conflict becoming increasingly troublesome and disengaged (Hartup, 1992a). Similarly, for adolescents, adaptive achievement motivation appears to be related to having a good quality friendship and a best friend who values academics, whereas friendships of poor quality and having a friend who is resistant to school norms appears to be related to reports of maladaptive achievement motivation (Nelson & DeBacker, 2008). Knowing this, it should be further considered whether friendship quality might be predictive of academic achievement.

Based on these findings and others that have indicated that peers may potentially influence attitudes and beliefs about and toward school (Cauce, 1986; Epstein, 1983; Hallinan & Williams, 1990; Ide, Parkerson, Haertel & Walberg, 1981) and that academic achievement and performance may not only be affected by having friends, it is likely that friends may also affect the type of motivation that results from the academic aspirations and behavior of friends. Consequently, interacting with friends who reject school may

increase the likelihood of poor academic performance. Because friends are sources of support and sources of beliefs and values, it is not surprising that children may come to share the same beliefs and values as their friends and mimic behaviors associated with those beliefs and values. In fact, friends' interest in school has shown to affect the amount of social support children get from friends (Jacobson, 2010). Additionally, more positive friendships have been shown to be related to future positive attitudes toward school, greater levels of engagement in school, higher achievement, and fewer school problems (Berndt, Hawkins, & Jiao, 1999). This information might suggest that any variance in the nature of friendships, positive or negative, could greatly affect any or all of the four identified main functions of friendship, particularly friendship as a cognitive resource. In particular, because of the evolving complexity of friendships, especially regarding conflict, among adolescence and young adults, what level of influence closeness and conflicts with friends have upon academic achievement is of importance.

It is clear that friendships allow for the development of various social skills, and because friendships will encounter conflict, conflict management is critical in the maintenance of friendships. Conflict itself and conflict resolution will be approached in different ways depending on the individuals involved in the conflict, whether the individuals are indeed friends, enemies, or merely acquaintances, and where in the lifespan the individuals are – childhood, adolescence, or adulthood. As noted previously, friendships do not hold the same functions and are not characterized by the same qualities depending on the age of the persons involved. Children at all ages, regardless of the time during development, partake in talk, task orientation, cooperation, positive affect, and effective conflict management during social interactions with friends more so than with

nonfriends (Hartup, 1996). Doyle (1982) reported that from as early as age three, children's social interaction and play with friends is more complex and cooperative than with nonfriends. By the time children enter fourth and fifth grade, they engage in more sophisticated play with their friends than they do with nonfriends. By adolescence, behavioral differences among friends and nonfriends, such as generosity, cooperation, and helpfulness, are even stronger than during preschool and middle childhood.

Research regarding the differences in conflict between friends seems to indicate the opposite. It would be assumed that because friends have more cooperative and friendly interactions that they would have less conflict with friends than nonfriends. Friends actually engage in more conflict, including such behaviors as arguing, active hostility in the form of assaults and threats, and reactive hostility in the form of refusals and resistance (Hartup, 1992b; Rubin, Chen, Coplan, Buskirk, & Wojslawowicz, 2005). How friends deal with conflict and the subsequent effects of conflict are very much dependent on the type of conflict. For example, conflict may be the result of intellectual arguments or differences in opinion regarding a particular matter, or conflict may be the result of personal violations, such as breaking another's trust, disclosing personal information, or betrayal.

For friends, dealing with conflict in different ways or with much more intensity than non-friends may be the result of a variety of reasons. For instance, friends know one another better and may actually be quicker to engage in conflict because they are more comfortable with one another, especially in regards to exploring the limits of their relationship. Similarly, as eluded to in the discussion of the functions of friendships and development of friendships over time, the expectations of friends are different than those

of nonfriends, particularly when it comes to help and support, with friends having greater expectations (Bigelow, 1977). Because friends tend to be more emotionally involved with one another and operate on a deeper, more emotional level, they may interpret an act or statement of friends differently, or more offensively, than they would of nonfriends, and in response find themselves becoming defensive much more quickly. When individuals feel betrayed by their friends' violations of the security of the relationship, it is logical to assume that the betrayals resonate deeply, and that the conflict is likely to be very highly emotional as a result. Whereas when one is engaged in an academic conflict with friends, individuals may be willing to further pursue their conflict, but because it is less emotionally driven and the overall nature of the conflict is likely to be less intense, it is logical that the conflict would be less likely to resonate on as deeply a personal level.

Further, what is perhaps most important and interesting is both how friends and nonfriends resolve conflict and the ensuing outcomes of those conflicts. Friends are more likely to resolve conflicts in more effective ways, such through negotiation and disengagement, or standing firm, than nonfriends (Rubin et al., 2005). Friends are more likely to attain fair resolutions and come to an agreement (Newcomb & Bagwell, 1995; Tomada, Scheider, & Fonzi, 2002). As suggested by Laresen, Hartup, & Keplas (1996), despite the fact that there appears to be more conflict among friends than nonfriends, friends resolve conflicts in ways that promote the continuation of their relationship after the conflict and into the future. Because the friendships are of significance to the lives of the individuals, logically one would assume that there is both more of a desire to and more of an effort made by the individuals to reach resolutions that are in line with maintaining the friendship.

This information supports the idea that children interact differently with friends than with nonfriends, with more engagement in prosocial behaviors and conflict among friends than nonfriends. Based on these findings, it is reasonable to assume that friendship quality not only influences the amount of conflict in which children engage in and how the conflict is resolved, but also the reasoning behind the conflicts, and the overall distress that those conflicts may have on friends both during and after the conflict, especially if the conflict is unable to be resolved. Hartup and Stevens (1999), elaborated that “friendship quality is related to the psychological well-being of children and adolescents and to the manner in which they manage stressful life events” (p.78).

Given the evolving view that quality friendships are reciprocal in nature and are characterized by mutuality, trust, and empathy, one might hypothesize that conflicts that arise as a result of what is believed to be a violation of these characteristics of friendship could have a much greater emotional impact on the parties involved than would be a conflict between nonfriends who have not established relationships with such qualities. Hartup and Stevens (1999) addressed that “self-disclosure occurs more frequently and involves more depth of disclosure among friends than nonfriends; friends are more directive and authoritative with one another than nonfriends” (p.77). The emotional impact from such conflicts may, if not resolved in an effective way, adversely affect the academic performance of either or both of the parties in the friendship, or if resolved in effective ways, potentially enhance the academic performance of either or both of the parties involved.

When friends fight with one another, much can be learned from how the conflict is resolved, including the strategies used and the manner in the conflict is resolved, and

various motivations for either resolving or choosing not to resolve conflict. Research implies that conflicts can be constructive and positively impact cognitive flexibility in that they made lead to more effective problem-solving, increase the ability to see different ideas and perspectives, provide a safe and secure environment for expressing one's self, for justifying, revising, and elaborating on ideas, and for growing from contradictions to ideas (Gifford-Smith & Brownell, 2003). Because conflict can lead to acquisition of better social problem solving skills, research suggests that such social problem solving skills may be generalizable to academic tasks (Ladd, Buhs, & Troop, 2004).

Similarly, however, conflict can be very damaging and negatively impact not only the current state and future existence of the friendship, but also impair cognitive ability. Conflict can induce rumination, or persistent, sustained and repetitive thought about the conflict and friendships, and can negatively impact cognitive flexibility. While rumination can be a means for trying to overcome negative feelings, and some level of rumination is natural, high levels of rumination can have many negative effects. Those who ruminate have a higher risk of developing depression than those who do not ruminate, and high ruminators tend to suffer from more severe forms of depression (Lyubomirsky & Nolen-Hoeksema, 1995). Rumination, in conjunction with being in a depressive state, increases the chances for impairments in concentration, academic performance, and activities of daily living (Lyubomirsky, Kasri, & Zehm, 2003). The tendency for ruminators to focus on anxious, negative, and depressed thoughts and feelings decreases self-effectiveness in conjunction with social and cognitive problem solving (Jensen, Johnston, Kahrs, Kauwe, & Knight (2008). It is likely then that a

constant focusing on and replays of conflicts with friends and the negative nature of such thoughts can impact individuals' ability to focus on and attend to academic tasks.

When depressed college students were tested on rumination and their ability to recall a passage, those who recorded more instances of lapses in thought performed worse, suggesting that negative thoughts distracted from their ability to recall from the passages from memory (Hertel, 1998). Further, dysphoric ruminators poorer performance on the academic tasks of reading and answering questions, listening to a lecture and processing the information, and proofreading a paper appears to be a result of rumination challenging cognitive ability, due to diminished concentration, more time spent on the task, and recurrent intrusive thoughts (Lyubomirsky et al., 2003). Based on the research presented, if rumination can produce such debilitating effects on college students, whose cognitive processing functions and abilities should be more advanced and well defined than those of children and adolescents, one can be fairly certain that rumination should have just as much, if not more of a negative impact upon cognitive performance and academic achievement in elementary and middle school populations.

Motivation plays an important role in not only whether or not individuals decide to resolve a conflict, but also in making and maintaining friendships and achieving academic success. Of particular interest to the present study is the role that social relationships, specifically friendships, have upon academic motivation, or motivation associated with performance on tasks regarding standards of excellence (Eccles, Wigfield, & Schiefele, 1998). Early theories proposed that motivation is the result of biological drives and instincts, however, these theories were challenged by the notion of curiosity, manipulation, and exploratory behaviors as a desire toward competence or

mastery over the environment, even when basic physiological needs are met (Eccles et al., 1998). This motivational construct was termed effectance motivation, in which the goal is to acquire competence and influence the environment, and takes into consideration the role success and failure play in later motivation (Harter, 1983).

Likewise, current theories of motivation do not focus on instinct, drives, and emotional states, but rather on beliefs and cognitions that compel individuals to act, such as expectancies for success and failure, self-efficacy beliefs, control beliefs, values, self-regulatory beliefs, goal pursuits, and interests (Eccles et al., 1998). In fact, much of the current research in the area of motivation and academic achievement focuses on these motivational factors. One's interpretations of achievement outcomes, based on success and failure, their level of self-efficacy or the extent to which they believe that they are capable of completing a task, and their sense of control over the outcomes of the task they are engaging in, all contribute to an individual's perception as to whether they can do particular tasks and their motivations to act.

The value assigned to tasks also influences whether an individual wants to do tasks. Eccles-Parsons et al. (1983) identified four motivating components of task value: 1) attainment value, or the personal importance of doing well on a task; 2) intrinsic value, or the interest in or pleasure or enjoyment that comes from completing the task; 3) utility value, or how completing the task can facilitate attaining the individual's current and future goals; and 4) cost, or the negative aspects of performing a task, such as difficulty, fear of failure, the amount of effort needed, or lost opportunities.

As can be seen, interests and goals play a major role in determining the value of a task, and as such also greatly contribute to whether individuals want to perform a task or

not. Eccles et al. (1998) discuss that interest can be separated into individual interest and situational interest, and explain the differences between each. Individual interest can be distinguished in two ways: feeling related interest, which represents the feelings accompanying an object or activity, such as involvement or stimulation, and value-related interest, which represents the personal importance or significance of a task. Research has found that individual interest is more strongly linked to markers of deep level learning rather than surface level learning (Schiefele, 1996). Situational interest is when particular aspects or features of a task stimulate a certain emotional state. Research has shown that certain characteristics of academic tasks generate interest, such as personal relevance, novelty, and activity level (Hidi & Baird, 1986), and that in return, high levels of interest have been linked to valuing, partaking in, and persevering at specific tasks (Deci, 1992).

Goals, which guide behavior to outcomes that individuals would like to attain, are thought to influence whether an individual wants to engage in a task or not. Ford and Nichols (1987) differentiated between within person goals and person-environment goals. Within person goals involve wanted within-person outcomes, whereas person-environment goals involve the association between individuals and their environment. In sum, Leithwood and Montgomery (1984), report:

The strength of one's motivation to act depends on the importance attached to the goal in question and one's judgment about its achievability; motivational strength also depends on one's judgment about how successful a particular behavior will be in moving toward goal achievement. (p.31)

Lastly, self-regulation of behavior in ways that allow for goal attainment is related to motivation in that people can determine what they must do in order to succeed on a

given task. Self-regulated students have been depicted as taking an active role, metacognitively, motivationally, and behaviorally in their own learning processes and goal attainment (Zimmerman, 1989). Such self-regulation involves self-observation, self-judgment, and self-reactions, and when these evaluations are of a positive nature, individuals are likely to persevere through the task (Zimmerman, 1989).

Also prevalent are theories of intrinsic and extrinsic motivation. Individuals who are said to be intrinsically motivated engage in activities for their own sake and out of interest, enjoyment, challenge, or pleasure, whereas individuals who are said to be extrinsically motivated engage in activities in response to external factors, such as obtaining a reward (Eccles et al., 1998). Harter (1981) identified three components of intrinsic motivation orientations: preference for hard or challenging tasks, learning driven by curiosity or interest, and striving for competence and mastery. Preferences for hard or challenging tasks and learning driven by curiosity or interest have also been linked to extrinsic motivation. There is evidence to support that high levels of intrinsic motivation foster positive emotional experiences, self-esteem, high academic achievement, and the use of proper learning strategies (Eccles et al., 1998).

Research has shown that even young children are able to make social comparisons and are able to evaluate their social and academic identities based on their own successes and failure, and compare their competence with the competence of friends and classmates, all of which combines to form a student's self-concept (Gest, Domitrovich, & Welsh, 2005). Self-concept has been found to be positively correlated with student achievement (Ginsburg-Block, Rorhbeck, & Fantuzzo, 2006). Similarly, individuals' academic reputations are strong predictors of academic self-concept, as well as level of

effort and performance (Gest, Rulison, Davidson, & Welsh, 2008). Positive academic reputations are associated with the recognition of success by peers, more requests for academic help from peers, and associations with other classmates who are viewed as high achieving, whereas negative academic reputations are associated with other's awareness of students' academic failures, exclusion from tasks necessitating academic proficiency, and associations with other classmates who are thought to be low achieving (Gest et al., 2008). The psychological impact, like anxiety or fear that can come from negative beliefs about students' ability based on their academic reputation or low levels of self-efficacy, may weaken students' motivation to complete and engage in tasks. Kinderman (1993) notes that student motivation is a result of the likeness between individuals and their peer group, and non-peer group classmates. Just as students have a tendency to gravitate toward those who have similar academic reputations, they also gravitate toward those with comparable levels of motivation and effort. For instance, high achievers who pursue friendships with others who are high achievers are likely to develop more positive academic motivation, whereas low achievers who pursue friendships with others who are low achievers are likely to have lower levels of motivation when it comes to school and be more motivated to participate in other activities that have been deemed to have more value (Kinderman, 1993).

Relatedly, the motivation and the influence the peer group has on individuals and their level of motivation is likely to fluctuate depending on the age group. Research has indicated that confidence in achievement declines as a child ages, especially at the ages of twelve and thirteen (Stipek, 1984), and therefore it can be assumed that motivational orientation also changes in response to this decline. At the ages of twelve and thirteen,

much more time is spent with peers, making student goals, interests and values more susceptible to the influences of friends, allowing peers to play an extremely big role in influencing motivation and academic achievement (Eccles et al., 1998). This means that students can be swayed motivationally in positive or negative ways. If friends' values support engagement and doing well in school, friends can influence how hard students work and the grades they get. Conversely, if friends' values are unsupportive of school engagement and getting good grades they might influence students to act in ways that do not promote academic success.

Especially problematic for student academic achievement motivation at this age is the fact that social activities are regarded as being more enjoyable than many other activities, often even academics (Eccles et al., 1989). Therefore, if students' friends or peer groups undervalue academic achievement as compared to other activities, students' focus may change to align with that of their peer group, with potential detrimental effects on motivation. Berndt, Laychak & Park (1990), in an effort to assess friends' influence on adolescent academic motivation, found that when pairs of friends were given dilemmas assessing achievement values that affect effort, involvement, and interest in academic tasks, and were allowed to discuss the dilemmas together, there was an increase in similarity of the friends' independently made decisions. Decisions reflecting high motivation showed a greater value for education and higher priority assigned to school related tasks, whereas decisions reflecting low motivation exemplified little interest in doing well in school and a negative response to challenges requiring additional work. It is clear that while peer acceptance and having reciprocated friendships can foster academic achievement in many ways (Austin & Draper, 1984; Estell, Farmer, Cairns, &

Cairns, 2003; Wentzel & Caldwell, 1997; Wentzel, McNamara, & Caldwell, 2004), it can also have negative influences on academic performance, as well as upon achievement motivation orientation, especially during adolescence.

In general, perceived levels of support from peers have been linked to positive aspects of motivation for students in elementary and middle school. Perceptions of peer social and emotional support have been connected with the motivational aspects of goal pursuit, intrinsic value, and self-concept (Wentzel, 1994) in addition to classroom participation (Deci, 1992), and indirectly to interest in school (Wentzel, 1998). This may prove to be especially true in adolescence when friendships are characterized by greater levels of intimacy and support. In a study examining similarities in achievement motivation between eighth grade students and their friends, and whether support from friends moderated these associations, Bissell-Havran & Loken (2009) found positive correlations among friends' and students' academic self-competence and their intrinsic value of academics. When friendships were rated as being more supportive, there was also a stronger positive relationship between students' and friends' academic self-concept. However, friends' support did not appear to be related to students' values for Math or English. Interestingly, friends' support was found to positively moderate the relationship between friends' own reported value for math and students' reported value for math. These results suggest that in friendships that are more supportive in nature, it is more probable that students will be influenced to have a greater sense of competence in domains that their friends feel more proficient.

Given the findings regarding age and various characteristics of friendship in relation to motivation and the findings regarding friendship in relation to academic

achievement, it is of interest whether friendship quality can 1) positively predict intrinsic motivation and 2) positively predict academic achievement 3) whether the characteristics of age, friendship quality, and intrinsic motivation are predictive of academic achievement, 4) whether age, friendship quality, and time spent with friends are predictive of overall motivation, 5) whether friendship quality, length of friendship, and time spent with friends differs depending on student grade level, 6) whether friendship quality has a greater impact on intrinsic motivation and achievement depending on student grade level, 7) whether intrinsic motivation is predictive of academic achievement when controlling for closeness within friendships 8) whether closeness within friendships is predictive of academic achievement, and 9) whether conflict within friendships negatively predicts achievement.

Undoubtedly, research has shown that friendship, and its many different aspects, along with motivation, and the two in conjunction, can impact the cognitive development and academic achievement of students in varying ways.

Present Study

The present study examined the variables of age, grade level, friendship quality, including specific aspects such as conflict and closeness, length of friendship, and time spent with friends, motivation and academic achievement. The hypotheses for this study included: (a) friendship quality will positively predict intrinsic motivation, (b) friendship quality will positively predict academic achievement, (c) age, friendship quality, and intrinsic motivation will be positively predictive of academic achievement (d) age, friendship quality, and time spent with friends will be positively predictive of motivation, (e) grade levels will differ on friendship quality, length of friendship and time spent with

friends, with 8th graders scoring higher than 5th graders (f) friendship quality will have a greater effect on intrinsic motivation and achievement in 8th grade than in 5th grade, (g) intrinsic motivation will positively predict academic achievement in 5th and 8th grade when controlling for closeness within friendships, (h) higher levels of companionship will predict higher academic achievement, and (i) higher levels of conflict will negatively predict academic achievement.

Due to the increase in attention nationwide on student achievement and the positive outcomes that result from academic success, as well as the importance assigned to children's friendships and the multitude of influences friendship can have upon children both socially and academically, this study holds great significance. Knowing the influences of age, friendship quality, various aspects of friendship, and motivation on academic achievement can only serve to enhance student achievement outcomes, and therefore success in adulthood. Both teachers and parents alike can develop a better understanding of how those with whom children choose to socialize and enter into friendships with can affect their children's motivation and academic performance. The findings may inspire parents and teachers to assign a greater value to and more closely monitor student friendships, including various aspects of those friendships such as closeness and conflict. Determining how the quality of those friendships are likely to influence student motivation and learning may help find ways to remediate those influences that may be affecting motivation and achievement in undesirable ways. Further, knowing students' motivation, and various factors influencing motivation, can allow teachers to evaluate and implement different motivational and teaching techniques to inspire increased levels of motivation, learning, and achievement according to the age

of their students. All of this combined could potentially yield higher levels of academic achievement nationwide. Higher levels of achievement could lead to both a better quality of life and more opportunity for students as they enter into adulthood, as well as an increase the number of positive contributions to society that students make as adults.

METHOD

Participants

Two groups of participants, approximately 93 total, were recruited from local consenting schools, 22 fifth graders from an elementary school and 71 eighth graders from a middle school. Efforts were made to recruit similar numbers of males and females, and of the 93 participants surveyed, 46 were male and 47 were female. Students ages 9-10 and ages 12-14 were recruited for participation, as these are the typical ages of students in the 5th and 8th grades. The ages of the participants ranged from 10-14, with a mean age of 12.51 and a standard deviation of 1.90. Attempts were made to obtain an ethnically diverse group of participants, however the ethnic variation of students who were recruited for participation in the study were very similar and limited to 3 or 4 ethnic variations given that there was little ethnic diversity in both the city and the schools from which participants were recruited. Seventy-eight percent listed Caucasian as their ethnicity, 8% listed Hispanic, 2% listed African American, and 5% listed Other.

Procedure

Permission from the USD 489 superintendent to conduct the study within the district was first obtained through verbal and written means. After receiving permission to survey two schools in the district, the principals of both schools were contacted to obtain their permission, with both verbally and written consent again obtained. Further, after receiving principal permission, verbal and written permission was sought from the 5th grade classroom teachers and computer teacher, and 8th grade computer teacher to recruit from their classes and use designated class times to conduct the survey.

Participants were recruited by sending letters home to the parents of all students who met

the age qualifications for participating in the study. The examiner spoke to all of the students, and the letters and consent forms were sent home in student backpacks. As an incentive for giving the letter and consent form to their parent(s), students were given a coupon for free snoball if they returned their consent form with either signature line (agree/do not agree) signed by a specified date. Students who returned the consent form signed by their parent(s) giving consent were allowed to participate in the study, while students whose parents chose not to give consent or who did not return the form were not allowed to participate in the study.

The 8th grade students were asked to return their consent forms to their computer class teacher, at which time they were placed in an envelope given to the teacher by the researcher. The 5th grade students were asked to return their consent forms to their classroom teachers, and similarly the returned forms were placed in envelopes given to the teachers by the examiner. The examiner gathered the forms from all of the teachers at the end of the school day on the specified return date. Assent from the students was obtained when the survey was administered to the students for whom parental consent was given. By clicking “yes” the student gave assent and continued with the survey, by clicking “no” the student indicated that that he or she is was not giving assent and the survey was over at that time.

Children were administered a survey via computer. At both grade levels, the students completed the measures on the computer during their designated computer class time so that the surveys were in no way associated with the consent forms or with any reportable results to further ensure confidentiality and participant anonymity. Because all students in the class were at a computer, those students for whom consent was given

completed the survey, whereas for those students whose parents did not consent to participation, they were given an alternative activity on the computer for them to complete so that it was unknown who was or was not participating in the survey.

Children were asked to report the random ID number assigned to them, report basic demographic information about themselves, identify a peer who they consider to be their best friend based on a definition of friendship that was given to them, and then they were asked to answer questions about their friendship and complete the friendship quality and motivation questionnaires. It took no longer than 15-20 minutes for the students to complete the surveys. All measures were presented in the same order to all children. If at any time, before, during, or after the survey, children wanted to withdraw they had the right to do so without any negative consequences and with no questions asked. There were minimal risks to all children who took the survey. Some children might have felt uncomfortable by the nature of the questions regarding the perceived quality of their friendship, and in the event that children experienced any discomfort or distress, information was provided as to where help for their distress could be sought. The examiner was present during each administration of the survey, and introduced the survey, gave the students instructions as to how to answer the questions, and re-iterated the right to withdraw at any time.

Measures

Children completed four measures: demographics, friendship description, the Friendship Qualities Scale, and the Intrinsic versus Extrinsic Motivation Scale. Academic achievement scores were obtained by examining the student's Fall 2011 standard Measures of Academic Performance (MAP) scores, in the areas of Reading and

Math. MAP scores were obtained as the measure of academic achievement. The school psychologist at both schools was given a list of the children for whom consent was given, she then assigned each student a random ID number and recorded the MAP scores for each child with consent. She then removed the names from the list of participant numbers and MAP scores to ensure student confidentiality and privacy. Before taking the survey each child was given a slip of paper containing his or her assigned ID number by his/her computer teacher and when prompted during the survey entered the ID number so the survey data and MAP scores could be linked.

Demographics. Children reported their gender, age, ethnicity, grade level, and randomly generated student ID number (to link with MAP scores).

Friendship description. Friendship was defined as: a relationship between two people who have chosen to be friends with each other and who would both agree when asked that the other is their friend, who are equals (one friend does not try to control the other), and who care about each other and want the other to be happy and healthy. When thinking about that friend, children reported the amount of time they spend with that friend and how long they've been friends, and how satisfied they are with the friendship.

Friendship qualities scale. The Friendship Qualities Scale (Bukowski, Hoza, Boivin, 1994) is a measure of friendship quality geared specifically toward children and adolescents, and is based on subscales of companionship, conflict, help/aid, security, and closeness. Children were encouraged to rate their friendship according to the way it is currently, and not according to how they want it to be. For each item of the 23 items on the Friendship Qualities Scale, children used a 5 point Likert-type scale to rate to what extent each item, such as "I feel happy when I'm with my friend" and "If there is

something bothering me, I can tell my friend about it even if it is something I cannot tell to other people”, was true about their relationship, with 1 being not true, 3 being usually true, and 5 being really true.

A total mean score was calculated for overall friendship quality, and a mean score for each subscale dyad was calculated for each dimension of friendship quality. For overall friendship quality, higher scores indicated that the friendship is of a higher, more positive quality, while lower scores indicated that the friendship is of a poorer quality. For all subscales, higher scores indicated higher levels of that particular dimension of friendship quality. For example, higher scores on the conflict subscale indicated more conflict, and lower scores indicated less conflict.

Bukowski, Hoza, and Boivin (1994) found the scale to be reliable and valid measure of friendship quality. Factor analysis has confirmed that the subscales represent different but related dimensions of friendship. Each dimension has been found to be a reliable measure, with all subscale alpha coefficients between .71 and .86. The validity of the measure has been revealed through higher ratings for mutual friends than non-mutual friends, and higher ratings for stable friends than non-stable friends.

Intrinsic versus extrinsic motivation. Children completed a 30 item measure of intrinsic versus extrinsic motivation with questions oriented specifically toward children and adolescents (Harter, 1981; Lepper, Corpus, & Iyengar, 2005). Students rated the degree to which intrinsic and extrinsic factors account for academic behaviors within their classroom, or are “true for them” using a 5 point Likert-type scale, with 1 being not at all like me, 3 being sort of like me, and 5 being exactly me, on items such as, “I like hard work because it’s a challenge” and “I don’t like to figure out difficult problems”.

The 17 intrinsic items focused on challenge, curiosity, and a desire for independent mastery, and the 13 extrinsic items focused on preference for easy work, pleasing the teacher and getting good grades, and dependence on the teacher for assistance.

The 17 items of the intrinsic motivation scale were averaged together to obtain a single index of intrinsic motivation, and the 13 items of the extrinsic motivation scale were averaged together to obtain a single index of extrinsic motivation. Higher scores on each scale will indicate higher levels of intrinsic and extrinsic motivation.

Harter's original measure was modified by Lepper, Corpus, & Iyengar (2005) and the modified measure was utilized. Lepper, Corpus, & Iyengar (2005) found both the intrinsic and extrinsic and intrinsic items to be valid and reliable measures, intrinsic validity ($\alpha = .90$), intrinsic reliability ($r = .74$), extrinsic validity ($\alpha = .78$), and extrinsic reliability ($r = .74$). Validity of both the intrinsic and extrinsic measures has been further demonstrated in correlations of the scale in previous studies with ratings of students' classroom motivation made by their teachers, with a positive correlation between teachers' ratings of intrinsic motivation and students reported intrinsic motivation and with a negative correlation between teachers' ratings of intrinsic motivation and students reports of extrinsic motivation.

RESULTS

Multiple analyses were performed to examine and compare the 5th ($n=22$) and 8th ($n=71$) grade student survey responses. The results of each statistical analysis are discussed below in accordance with each hypothesis. Additional descriptive statistics can be found below in Table 1. Table 2 at the end of this section contains statistical information for all regression models.

Table 1

Descriptive Statistics

Variable	M	SD	Range	Min	Max
Age	12.51	1.90	4	10	14
Map-Reading	224.49	13.05	51	195	246
Map-Math	232.83	16.24	83	190	273
Overall Motivation	3.06	.47	2.17	2.10	4.27
Extrinsic Motivation	3.03	.56	3.03	1.38	4.42
Intrinsic Motivation	3.08	.80	3.56	1.44	5.00
Overall Friendship Quality	3.31	.59	2.70	1.70	4.39
Friendship Conflict	2.02	.86	3.50	1.00	4.50
Friendship Closeness	3.95	.74	3.00	2.00	5.00

Note. Overall Motivation, Extrinsic Motivation, Intrinsic Motivation, Overall Friendship Quality, Friendship Conflict and Friendship Closeness were examined using 5 point Likert-type scales.

Hypothesis (a)

A regression was performed to assess whether friendship quality ($M=3.31$, $SD=.60$) positively predicts intrinsic motivation ($M=3.08$, $SD=.80$) among 5th and 8th grade students. A scatter plot indicated that the relationship between friendship quality and intrinsic motivation was positive and reasonably linear with some bivariate outliers. A Pearson's Correlation indicated that there is a significant correlation between friendship quality and intrinsic motivation, $r(91)=.24$, $p<.05$ (two-tailed), suggesting a weak, positive linear relationship. For the regression equation $R^2=.06$ and the adjusted $R^2=.05$, suggesting that about 6% of the variance in intrinsic motivation could be predicted from friendship quality. A significant regression equation was found, $F(1, 91)=5.39$, $p<.05$. Friendship quality was significantly predictive of intrinsic motivation among 5th and 8th grade students, $t(91)=2.32$, $p<.05$. The positive slope for friendship quality as a predictor of intrinsic motivation indicated that there was about a .32 increase in the intrinsic motivation of each student for each 1 increase in friendship quality. This finding suggests that the more positive the quality of children's friendships are, the more intrinsically motivated children are.

Hypothesis (b)

A regression was performed to examine whether friendship quality ($M=3.30$, $SD=.60$) positively predicts academic achievement in reading ($M=224.49$, $SD=13.05$) and, separately, academic achievement in math ($M=232.83$, $SD=16.24$) among 5th and 8th grade students. Scatter plots indicated that the relationship between friendship quality and reading achievement, in addition to friendship quality and math achievement were both positive and reasonably linear with some bivariate outliers. Pearson's Correlations

indicated that friendship quality is not significantly related to reading achievement, $r(88)=.16, p>.05$ (two-tailed), or significantly related to math achievement $r(88)=.13, p>.05$ (two-tailed). The regression model for friendship quality and reading achievement was not significant, $F(1, 88)=2.41, p>.05$, nor was the regression model for friendship quality and math achievement $F(1, 88)=1.52, p>.05$.

Hypothesis (c)

Two regressions were performed to assess whether age ($M=12.50, SD=1.92$), friendship quality ($M=3.30, SD=.60$), and intrinsic motivation ($M=3.10, SD=.81$) positively predict the reading achievement ($M=224.80, SD=12.98$) and, separately, the math achievement ($M=233.25, SD=16.18$) of 5th and 8th grade students. Scatter plots indicated that the relationship between each of the variables of intrinsic motivation, age, and friendship quality, and both reading and math achievement scores were all positive and reasonably linear with each having some bivariate outliers, with the exception of the relationship between reading achievement and intrinsic motivation which was had a negative relationship. Pearson's Correlations were performed. Similar to the previous hypothesis, friendship quality was found to be weak, positive and not significantly related to academic achievement for either reading $r(86)=.15, p>.05$ (two-tailed) or math $r(86)=.13, p>.05$ (two-tailed). Intrinsic motivation was also not found to be significantly related to academic achievement for either reading $r(86)=-.02, p>.05$ (two-tailed) or math $r(86)=.06, p>.05$ (two-tailed). Age, however, was found to be significantly related to academic achievement for both reading $r(86)=.53, p<.001$ (two-tailed) and math $r(86)=.45, p<.001$ (two-tailed), suggesting a moderate, positive linear relationship for both age and academic achievement in reading, and age and academic achievement in

math.

For the regression equation examining all three variables and reading achievement, $R^2=.28$ and the adjusted $R^2=.26$, suggesting that when age, friendship quality, and intrinsic motivation were used as predictors, about 28% of the variance in academic achievement in reading could be predicted, indicating a weak to moderate relationship. Together the group of variables yielded a significant regression equation, $F(3, 84)=10.98, p<.001$. However, age was the only variable that was significantly predictive of academic achievement in reading among 5th and 8th grade students, $t(86)=5.47, p<.001$. The positive slope for age as a predictor of academic achievement in reading indicated that there was about a 3.57 increase in academic achievement in reading of each student for each 1 year increase in age.

For the regression equation examining all three variables and academic achievement in math, $R^2=.21$ and the adjusted $R^2=.18$, suggesting that when age, friendship quality, and intrinsic motivation were used as predictors, about 21% of the variance in academic achievement in math could be predicted, indicating a weak relationship. Together the group of variables yielded a significant regression equation, $F(3, 84)=7.55, p<.001$. Age, again, was the only variable that was significantly predictive of academic achievement in math among 5th and 8th grade students, $t(86)=4.55, p<.001$. The positive slope for age as a predictor of academic achievement in reading indicated that there was about a 3.87 increase in academic achievement in math of each student for each 1 year increase in age. These findings suggest that the older the individual is the higher he or she will score on tests of academic achievement in both reading and math.

Hypothesis (d)

A regression was performed to assess whether age ($M=12.51$, $SD=1.90$), friendship quality ($M=3.31$, $SD=.59$), and time spent with friends ($M=2.98$, $SD=1.71$) positively predict the overall motivation of 5th and 8th grades ($M=3.06$, $SD=.47$). Scatter plots indicated that the relationship between each variable, age, friendship quality, and time spent with friends, and intrinsic motivation were all positive and reasonably linear with each having some bivariate outliers, with the exception of the relationship between age and student motivation, which was negative. Pearson's correlations indicated a very weak, positive, and non significant the relationship between age and student motivation $r(89)=-.05$, $p>.05$ (two-tailed), and a weak, positive, and non significant relationship between time spent with friends and student motivation, $r(89)=.11$, $p>.05$ (two-tailed). The correlation between friendship quality and student motivation was statistically significant, $r(89)=.23$, $p<.05$ (two-tailed), suggesting a weak, positive linear relationship.

For the regression equation, $R^2=.07$ and the adjusted $R^2=.18$, suggesting that when age, friendship quality and time spent with friends were used as predictors, about 7% of the variance in student motivation could be predicted, indicating a weak relationship. Together the group of variables did not yield a significant regression equation, $F(3, 87)=2.10$, $p>.05$.

Hypothesis (e)

Independent t tests were used to examine whether 5th and 8th grade students differ on friendship quality, length of friendship and time spent with friends. It was hypothesized that 8th graders would score higher than 5th graders on all three measures. 5th grade students ($M=3.11$, $SD=.66$) and 8th grade students ($M=3.38$, $SD=.56$) did not

significantly differ in the overall quality of their friendships, $t(91)=-1.88, p>.05$.

Similarly, 5th grade students ($M=4.41, SD=1.14$) and 8th grade students ($M=4.04, SD=1.10$) did not significantly differ in the length of their friendships, $t(91)=1.37, p>.05$. 5th grade students ($M=2.91, SD=1.69$) and 8th grade students ($M=3.04, SD=1.74$) also did not significantly differ in the amount of time they spend with their friends, $t(91)=-.32, p>.05$. The null hypothesis was retained for all three independent t tests.

Hypothesis (f)

A regression with dummy variable coding for 5th and 8th grade was used to assess whether friendship quality ($M=3.31, SD=.59$) has a greater effect on intrinsic motivation ($M=3.08, SD=.80$) and reading achievement ($M=224.49, SD=13.05$), and, separately, math achievement ($M=232.83, SD=16.24$). Previous scatterplots indicated that the relationship between friendship quality and intrinsic motivation, friendship quality and reading achievement, and friendship quality and math achievement were all positive and reasonably linear with some bivariate outliers. Previous correlations indicated a significant relationship between friendship quality and intrinsic motivation $r(91)=.24, p<.05$ (two-tailed), and non-significant relationships between friendship quality and reading achievement $r(88)=.16, p>.05$ (two-tailed) and between friendship quality and math achievement $r(88)=.13, p>.05$ (two-tailed).

For the regression examining whether friendship quality has a greater effect upon intrinsic motivation in 8th grader and in 5th grade, $R^2=.10$ and the adjusted $R^2=.08$, suggesting that when friendship and grade were used as predictors, about 10% of the variance in intrinsic motivation could be predicted, indicating a weak relationship. A significant regression equation was found, $F(2, 90)=4.91, p<.05$. Friendship quality was

significantly predictive of intrinsic motivation, $t(91)=2.72$, $p<.05$, as was grade, $t(91)=-2.06$, $p<.05$. The positive slope for friendship quality as a predictor of intrinsic motivation indicated that there was about a .37 increase in intrinsic motivation for each 1 increase in friendship quality. The negative slope for grade as a predictor of intrinsic motivation indicated that there was about a -.40 decrease in intrinsic motivation for each 1 increase in grade. These findings suggest that friendship quality and grade have a significant effect on intrinsic motivation, with the intrinsic motivation of 8th graders being significantly lower than the intrinsic motivation of 5th graders.

For the regression examining whether friendship quality has a greater effect upon reading achievement in 8th grade than in 5th grade, $R^2=.52$ and the adjusted $R^2=.51$, suggesting that when friendship and grade were used as predictors, about 52% of the variance in reading achievement could be predicted, indicating a moderate relationship. A significant regression equation was found, $F(2, 87)=47.23$, $p<.05$. Grade was significantly predictive of reading achievement, $t(88)=9.47$, $p<.05$. The positive slope for grade as a predictor reading achievement indicated that there was about a 21.57 increase in reading achievement for each 1 increase in grade. These findings suggest that grade has a significant effect on reading achievement, with 8th graders scoring higher on tests of reading achievement than 5th graders, indicating that as children get older and progress through school they will likely have higher reading achievement scores.

For the regression examining whether friendship quality has a greater effect upon math achievement in 8th grade than in 5th grade, $R^2=.43$ and the adjusted $R^2=.42$, suggesting that when friendship and grade were used as predictors, about 43% of the variance in math achievement could be predicted, indicating a moderate relationship. A

significant regression equation was found, $F(2, 87)=33.07, p<.05$. Grade was significantly predictive of math achievement, $t(88)=7.97, p<.05$. The positive slope for grade as a predictor math achievement indicated that there was about a 24.59 increase in math achievement for each 1 increase in grade. These findings suggest that grade has a significant effect on math achievement, with 8th graders scoring higher on tests of math achievement than 5th graders, indicating that as children get older and progress through school they will likely have higher math achievement scores.

Hypothesis (g)

A regression was used to examine whether intrinsic motivation ($M=3.08, SD=.81$) positively predicts academic achievement in reading ($M=224.49, SD=13.05$) and, separately, academic achievement in math ($M=232.23, SD=16.24$) among 5th and 8th grade students when controlling for closeness ($M=3.93, SD=.74$) within friendships. Intrinsic motivation did not significantly predict reading achievement in 5th and 8th grade when controlling for closeness, $F(49,40)=.72, p>.05$, nor did intrinsic motivation significantly predict math achievement in 5th and 8th grade when controlling for closeness $F(49, 48)=.78, p>.05$.

Hypothesis (h)

A regression was used to assess whether higher levels of closeness ($M=3.93, SD=.74$) predict higher academic achievement in reading ($M=224.49, SD=13.05$), and separately, higher academic achievement in math ($M=232.83, SD=16.24$) among 5th and 8th grade students. Scatter plots indicated that the relationship between closeness and reading achievement, in addition to closeness and math achievement were both positive and reasonably linear with some bivariate outliers. Pearson's Correlations indicated very

weak, positive, and non significant relationship between both closeness and reading achievement, $r(88)=.01, p>.05$ (two-tailed), and closeness and math achievement $r(88)=.02, p>.05$ (two-tailed). The regression model for closeness and reading achievement was not significant, $F(1, 88)=.02, p>.05$, nor was the regression model for closeness and math achievement $F(1, 88)=.02, p>.05$.

Hypothesis (i)

A regression was used to examine whether higher levels of conflict among friends ($M=2.02, SD=.87$) negatively predict the reading achievement ($M=224.49, SD=13.05$) and, separately, the math achievement ($M=232.83, SD=16.24$) of 5th and 8th grade students. Scatter plots indicated that the relationship between conflict and reading achievement, in addition to conflict and math achievement were both positive and reasonably linear with some bivariate outliers. Pearson's Correlations indicated that the amount of conflict is significantly related to both reading achievement, $r(88)=.20, p<.05$ (two-tailed), and math achievement $r(88)=.25, p<.01$ (two-tailed), suggesting a weak, positive linear relationship for both amount of conflict and reading achievement, and amount of conflict and math achievement. For the regression equation predicting reading achievement from amount of conflict, $R^2=.04$ and the adjusted $R^2=.03$, suggesting that about 4% of the variance in math achievement could be predicted from the amount of conflict, indicating a weak relationship. Despite the significant correlation between conflict and reading achievement, a significant regression equation was not found, $F(1, 88)=3.53, p>.05$, nor was amount of conflict found to be significantly predictive of reading achievement among 5th and 8th grade students, $t(88)=1.88, p>.05$.

For the regression equation predicting math achievement from amount of conflict,

$R=.25$ and $R^2=.06$, suggesting that about 6% of the variance in math achievement could be predicted from the amount of conflict, indicating a weak relationship. The adjusted R^2 was .05. A significant regression equation was found, $F(1, 88)=5.75, p<.05$ and amount of conflict was significantly predictive of math achievement among 5th and 8th grade students, $t(88)=2.40, p<.05$. The positive slope for amount of conflict as a predictor of math achievement indicated that there was about a 4.60 increase in math achievement for each 1 increase in amount of conflict. Contrary to the hypothesis, only math achievement could significantly be predicted from the amount of conflict, and rather than higher levels of conflict having a negative effect on math achievement, the data suggests that the greater the amount of conflict, the higher math achievement will be.

Table 2

Regression Models

Model	<i>F</i>	β	<i>t</i>
Predicting Intrinsic Motiv.			
FrdQuality	5.39*	.32	2.32*
FrdQuality	4.91**	.37	2.72**
Grade		-.40	-2.06*
Predicting MAP-R			
FrdQuality	2.41	3.60	1.55
Age	10.98***	3.57	5.47***
FrdQuality		.39	.18
Intrinsic Motiv.		.20	.13
FrdQuality	47.23***	.79	.48
Grade		21.57	9.47***
Closeness	.02	.24	.13
Conflict	3.53	2.93	1.88
Predicting MAP-M			
FrdQuality	1.53	3.58	1.24
Age	7.54***	3.87	4.55***
FrdQuality		-.04	-.02
Intrinsic Motiv.		1.77	.88
FrdQuality	33.07*	.38	.17
Grade		24.59	7.97***
Closeness	.02	.32	.14
Conflict	5.75	4.60	2.40*
Predicting Overall Motiv.			
Age	2.10	-.30	-1.10
FrdQuality		.22	2.21*
Time Spent with Frd		-.00	-.09

* $p < .05$, ** $p < .10$, *** $p < .001$

DISCUSSION

The overall purpose of the present study was to examine how the variables of age, grade level, friendship quality, including specific aspects such as conflict and closeness, length of friendship and time spent with friends, influence student motivation and academic achievement. Based on the statistical analyses, the results for each variable are discussed below.

Age was found to be significantly predictive of academic achievement in both the areas of math and reading, suggesting that as age increases scores on tests of academic achievement in reading and math will also increase. This finding can be explained by the fact that as students age and progress through grade levels, their knowledge in these academic areas will also increase, leading to higher scores on achievement measures. Age, in combination with the variables of friendship quality and intrinsic motivation, also produced significant regression equations for predicting academic achievement in reading and math. Conversely, age did not significantly predict student motivation, nor did age in combination with the variables of friendship quality and time spent with friends yield a significant regression equation. Age alone and in combination with friendship quality and time spent with friends may not have significantly predicted student motivation because at this age there may be other variables that are more heavily influencing student motivation, such as parent and teacher influences, or even pressure from classroom peers.

In examining differences based on grade level, 5th and 8th graders were not found to significantly differ in regard to friendship quality, length of friendship, or time spent with friends. It was predicted that 8th graders would score higher than 5th graders on all three measures. These outcomes may have been influenced by a disproportionate amount

of 5th and 8th grade participants due to the fact that the number of 8th grade participants was more than double the number of 5th grade participants.

Further, intrinsic motivation was found to differ among grade levels, with 8th graders having significantly lower levels of intrinsic motivation when examining the influence of friendship quality and grade on intrinsic motivation. The lower levels of intrinsic motivation among eighth graders in comparison to fifth graders may be attributed to the fact that at this age children are much more likely to be extrinsically motivated, or motivated by external rewards (Eccles et al., 1998). It is well known that at this age children are very much influenced by their peers, especially in social contexts, and seek praise and approval from those around them, making it such that receiving this external praise and approval could be extrinsically motivating (Eccles et al., 1998). Additionally, by the time students reach 8th grade, doing well academically often allows one to participate in sports and extracurricular activities, during which time they get the opportunity to be with and interact with their peers, all of which are external rewards that could potentially influence academic motivations.

Likewise, academic achievement was found to differ among grade levels when examining the influence of friendship quality and grade on academic achievement in reading and math, with 8th graders scoring significantly higher than 5th graders on both reading achievement and math achievement. This finding is very similar to the finding discussed earlier, that age is significantly predictive of academic achievement, such that as children age they are likely to obtain higher scores on academic achievement measures because overall their knowledge base has increased quite substantially. Because there is a three year time span between being a 5th grader and an 8th grader, and

because curriculums and coursework becomes more difficult and advanced with each increase in grade level, it is not surprising that 8th graders and 5th graders differ in reading and math achievement and that it is 8th graders who score higher on these measures.

Friendship quality was examined in relation to a number of variables, including intrinsic motivation, academic achievement in reading and math, overall student motivation, and grade level. Friendship quality was found to be significantly predictive of both overall motivation and intrinsic motivation among 5th and 8th grade students, suggesting that the more positive the quality children's friendships are, the more motivated they are likely to be both overall and intrinsically. This finding supports previous research, in that good quality friendships inspire more positive self-concepts, and self-concept has been found to be positively correlated with motivation and academic achievement (Ginsburg-Block, Rorhbeck, & Fantuzzo, 2006; Wentzel, 1994). Also, social and emotional support from peers, factors which contribute greatly to what defines a good quality friendship, have been associated with goal pursuit and value assigned to tasks (Wentzel, 1994), participation in the classroom (Deci, 1992), and interest in school (Wentzel, 1998), which all influence motivation.

Conversely, friendship quality was not found to be significantly predictive of reading achievement or math achievement, and as mentioned previously, 5th and 8th grade students did not significantly differ in their overall friendship quality. Friendship quality may not be significantly predictive of reading and math achievement for a number of reasons. One of these may be that how positive or negative children's friendship quality is may not necessarily carry over into academics, which are by nature more concrete and logical tasks. Moreover, while IQ is not the only factor that determines how well a

student will do academically, it does play a role nonetheless. Some students, by nature of their IQ may be more inclined to score higher or even lower academically, which can overpower any influence the quality of children's friendships may have on how they perform academically. Lastly, 5th and 8th graders may not significantly differ in their friendship quality because although by 8th grade friendships have become more complex in nature (Hartup, 1983), each individual's definition of a good quality friend will fluctuate depending on their age and what is important in that friendship. This means that even though there may be different expectations within friendships at these ages, at each age quality is determined based on those specific ideas children hold. A different questionnaire, or the expanded version of the questionnaire used assessing friendship quality may also yield different results, for it is possible that the questionnaire used did not have enough items or the right kind of items to pick up on specific differences of friendship quality.

Further, combining friendship quality with age and intrinsic motivation, yielded significant regression equations for predicting academic achievement in reading and math. As is known from previous findings in this study, age is a significant predictor of reading and math achievement. Age, combined with friendship quality, which the results of this study and previous studies identified as being significantly related to intrinsic motivation, could be a very powerful combination, especially in adolescence when relationships are very social in nature and students are most influenced by their friends (Eccles et al., 1989). Not only is one benefitting from the amount of knowledge exposed to over time, but also from the multitude of benefits that come from having a good quality friendship, the many aspects of which can inspire the intrinsic motivation

necessary to continue to be successful in acquiring knowledge as children progress throughout school (Nelson & DeBacker, 2008). And, because there is evidence to support that high levels of intrinsic motivation foster, among other things, high academic achievement and the use of proper learning strategies (Eccles et al., 1998), it is not surprising that the combination of the three variables significantly predicts academic achievement.

Conflict, an important aspect of friendship quality, was examined in relationship to reading and math achievement. It was predicted that higher levels of conflict among friends would negatively predict reading and math achievement. The amount of conflict between friends was not found to be significantly predictive of reading achievement among 5th and 8th grade students, whereas the amount of conflict between friends was found to be significantly predictive of math achievement. Contrary to the prediction made in the hypothesis, the data suggests that the greater the amount of conflict in children's relationships, the higher their math achievement will be. Previous research would have suggested that conflict and the subsequent rumination that occurs from engaging in conflict with a friend or friends, would negatively affect math achievement because of earlier findings that have found that rumination increases the chances for impairments in concentration, affects academic performance, and affects activities of daily living (Lyubomirsky, Kasri, & Zehm, 2003). The examiner speculates that perhaps the amount of conflict in the relationship is a result of competitiveness, and that same competitiveness carries over into a student's academic performance, or perhaps because math is more of a logical than emotional field any emotions that arise from conflict with a friend may not carry over into academic performance in that area. Another idea to be

considered is that engaging in conflict with a friend may increase an individual's problem solving skills, and those aspects of those social problem solving skills might generalize to academic tasks, or more specifically, to a student's math ability (Ladd, Buhs, & Troop, 2004), such as processes of deduction, active questioning, problem analysis, solving word problems, etc.

Closeness, another important element of friendship quality, was also examined in relationship to academic achievement in reading and math among 5th grade and 8th grade students. Opposite from conflict, closeness was not found to significantly predict either reading achievement or math achievement, and when analyses were used to examine whether intrinsic motivation positively predicts academic achievement in reading and math when controlling for closeness, intrinsic motivation was not found to significantly predict academic achievement in reading or math. Perhaps these findings indicate that the emotions that come along with being close with a friend do not influence those areas of a students' lives that are more concrete and do not carry a lot of emotion, such as in reading or math. Or it may be that the things one learns from being close with a friend are not transferrable or useful in academics, and that what is learned from such closeness could be utilized in other areas of life. It should be considered that while closeness may not significantly influence reading or math achievement in ways that are obvious through high test scores, closeness might help protect students emotionally concerning stress of failure when it comes to performing academically.

Additionally, closeness may not inspire motivation depending on their friends' values. Previous research has shown that students can be swayed motivationally in positive or negative ways by their friends' values (Eccles et al., 1998), especially if they

are very close to that friend. Therefore if a friend has a personality that characterizes them as not being highly motivated, or is not motivated or do not support participation and success in school, they might not see the positive value that comes from being motivated and act in the same manner as their friend.

Time spent with friends and length of friendship, additional variables thought to be indicative of friendship quality, in relationship to student motivation and achievement were also examined. Time spent with friends was not found to significantly predict student motivation, nor did combining time spent with friends with age and friendship quality yield a significant regression equation. Previous research identified that academic achievement and performance may not only be affected by having friends, but that it is likely that friends may also affect the type of motivation that results from the academic aspirations and behavior of friends (Ide, Parkerson, Haertel & Walberg, 1981). However, it is possible that when students get to spend time with their friends, the focus is largely on social interaction especially for students in the 8th grade, rather than on school work or school related activities, or even discussion of school work or school related activities. While a friend's performance and feelings about school and academic tasks can inspire motivation, if friends do not see each other in this capacity or if it is not something they talk about, motivation may not be affected.

Furthermore, no significant difference was found when examining whether 5th grade and 8th grade students differed in their time spent with friends. This could indicate that parents have either become more lenient in the amount of time they allow their younger children to spend with their friends, or that parents have not become more lenient in the amount of time they allow their adolescent children to spend with their

friends as they have aged. It is also important to consider that in 5th grade and 8th grade parents are still largely the means through which children get to see their friends – for they must be driven or coordinate schedules with other parents, whereas once adolescents reach the age of 16 and begin driving, spending time with their friends becomes more feasible as the dependency on their parents decreases. Other possibilities to consider include that because there are so many extra opportunities available for children to participate in, children may encourage their friends to become involved in activities that they are involved in too, lessening the amount of time they spend engaging in unstructured play time. Moreover, each both 5th and 8th graders in this district are the classes at the “top of the totem pole” so to speak, so by this point they have had a similar number of years to acquire and maintain friendships in the schools they are attending. One reason that 8th graders may not have friendships that are significantly longer than the 5th grade students is because upon moving from elementary to middle school in this community there are two choices of middle schools to attend, meaning that the friends they had in elementary school might attend a different school than they, and that new friends might be made in the transition as a result.

Limitations

The most obvious limitations of this study are the small sample size and the disproportionate amount of 5th grade and 8th grade participants. Similarly, the fact that there is little diversity and demographic variety among the participants, both in ethnicity and in the type of community or environment each is from, limits how generalizable these findings are. Additionally, because the survey was consisted of only self-reported measures, there may be some discrepancy in student responses because of a feeling to

respond to questions in a certain way.

To eliminate the effects of the limitations of small sample size and limited demographic variety, a larger number of participants should be recruited, with those participants being from diverse backgrounds. To improve upon the effects of the inaccuracy of self-reported measures, alternative forms of measure could be utilized, such as supplementary questionnaires, or that of interviewing or observation.

Future Implications and Research

Future research in this area should be extended to include a larger sample size and a sample more representative of the population. Moreover, because the results of this study indicated that friendship quality is significantly predictive of both overall motivation and intrinsic motivation, future research should also explore the additional subscales of the Friendship Qualities Scale in relation to student motivation. It would also be beneficial to give the expanded Friendship Qualities Scale to increase the number of items analyzed for each subscale. If we can determine the friendship qualities that inspire motivation among students, students can be encouraged to seek out friendships that have those qualities. Further, because the variables examined here offered little insight into what might significantly predict academic achievement, additional friendship variables should be examined in relation to academic achievement to obtain a better picture of what aspects of friendship influence academic achievement, and attempts should be made to control for the influence of IQ. Lastly, because there are so very many different aspects of friendship future research should explore friendship variables that might be more influential concerning student motivation and achievement, for many of the variables examined here appear to have only minimal influence.

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APPENDIX A

Acknowledgement and Modification Letters of Approval

OFFICE OF SCHOLARSHIP AND SPONSORED PROJECTS

DATE: October 20, 2011

TO: Anna Dechant

FROM: Fort Hays State University IRB

STUDY TITLE: [254131-2] Influence of Friendship on Motivation and Academic Achievement

IRB REFERENCE #: 12-013

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: October 20, 2011

EXPIRATION DATE: October 19, 2012

REVIEW TYPE: Full Committee Review

Thank you for your submission of Amendment/Modification materials for this research study. Fort Hays State University IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. This submission has received Full Committee Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form unless documentation of consent has been waived by the IRB. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document. The IRB-approved consent document must be used.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure. All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure. If you have any questions, please contact Leslie Paige at 785-628-4349 or lpaige@fhsu.edu. Please include your study title and reference number in all correspondence with this office.

OFFICE OF SCHOLARSHIP AND SPONSORED PROJECTS

DATE: November 17, 2011

TO: Anna Dechant

FROM: Fort Hays State University IRB

STUDY TITLE: [254131-3] Influence of Friendship on Motivation and Academic Achievement

IRB REFERENCE #: 12-013

SUBMISSION TYPE: Amendment/Modification

ACTION: APPROVED

APPROVAL DATE: November 17, 2011

EXPIRATION DATE: October 19, 2012

REVIEW TYPE: Expedited Review

Thank you for your submission of Amendment/Modification materials for this research study. Fort Hays State University IRB has APPROVED your submission. This approval is based on an appropriate risk/benefit ratio and a study design wherein the risks have been minimized. All research must be conducted in accordance with this approved submission. This submission has received Expedited Review based on the applicable federal regulation.

Please remember that informed consent is a process beginning with a description of the study and insurance of participant understanding followed by a signed consent form unless documentation of consent has been waived by the IRB. Informed consent must continue throughout the study via a dialogue between the researcher and research participant. Federal regulations require each participant receive a copy of the signed consent document. The IRB-approved consent document must be used.

Please note that any revision to previously approved materials must be approved by this office prior to initiation. Please use the appropriate revision forms for this procedure. All SERIOUS and UNEXPECTED adverse events must be reported to this office. Please use the appropriate adverse event forms for this procedure. All FDA and sponsor reporting requirements should also be followed.

Please report all NON-COMPLIANCE issues or COMPLAINTS regarding this study to this office.

Please note that all research records must be retained for a minimum of three years.

Based on the risks, this project requires Continuing Review by this office on an annual basis. Please use the appropriate renewal forms for this procedure. If you have any questions, please contact Leslie Paige at 785-628-4349 or lpaige@fhsu.edu. Please include your study title and reference number in all correspondence with this office.

APPENDIX B

Superintendent Letter

Dr. Roth,

My name is Anna Dechant and I am a graduate student at Fort Hays State University. Part of my degree requires that I conduct a research study, and I am writing to you to ask your permission to allow me to recruit students from the USD 489 district to participate in my study, as well as to ask if I may conduct my study while the students are in school.

The purpose of my study is to better understand how age, friendship, and motivation to learn can affect academic achievement/performance in school. I will be recruiting students ages 9-10 and 12-14, or more specifically those students in the 5th and 8th grades. My proposed plan for conducting my study, should you allow it, is to have the students complete a 15-20 minute survey during their designated computer class time. I have chosen this in an effort to ensure that the students' privacy be maintained to the greatest extent possible. There is minimal risk associated with participation in my study, and no deception will be used. My hope is to have the students use randomly assigned ID numbers as their only means of identification when participating in the study, that way their names would be in no way associated with their responses.

Additionally, because one of the variables of interest in my study is academic achievement, I would like to ask your permission to use the Fall 2011 MAP scores. To maintain confidentiality, I would ask that a member of school personnel compile the MAP scores for the students who have permission to participate, with them again only being identifiable by their assigned ID number, so that their MAP scores can be linked to their survey responses.

If you are kind enough to allow me to conduct my study in the district, I would then contact individual school principals and the appropriate teachers to seek their permission, and if permission is given, the most convenient dates and times to conduct the study, and to discuss my study in further detail and answer any questions.

If you have any questions please feel free to call or email either myself or my university supervisor. Our contact information is as follows:

Anna Dechant:

E-mail: aadechant@gmail.com,

Phone: 785-735-4609

Dr. Janett Naylor:

E-mail: jmnaylor@fhsu.edu

Phone: 785-628-5857

If you decide to allow me to recruit students from, and conduct my study within the district, I ask that you sign on the appropriate line below. If you decide otherwise, I ask that you sign the line indicating that you have not given permission for me to recruit students from the district and/or conduct my study within the district. Please use the stamped envelope included to return this letter. Thank you for your time and consideration.

Anna Dechant

(I give my permission)

(Date)

(I do not give permission)

(Date)

APPENDIX C

Principal Letter

Mr. Meagher/Mrs. Dinkel,

My name is Anna Dechant and I am a graduate student at Fort Hays State University. Part of my degree requires that I conduct a research study, and I am writing to you to ask your permission to allow me to recruit students from your school to participate in my study, as well as to ask if I may conduct my study while the students are in school.

The purpose of my study is to better understand how age, friendship, and motivation to learn can affect academic achievement/performance in school. I will be recruiting students ages 9-10 and 12-14, or more specifically those students in the 5th and 8th grades. My proposed plan for conducting my study, should you and your staff allow it, is to have the students complete a 15-20 minute survey during their designated computer class time. I have chosen this in an effort to ensure that the students' privacy be maintained to the greatest extent possible. There is minimal risk associated with participation in my study, and no deception will be involved. Further, my hope is to have the students use randomly assigned ID numbers as their only means of identification when participating in the study, that way their names would be in no way associated with their responses.

Additionally, because one of the variables of interest in my study is academic achievement, I would like to ask your permission to use your students Fall 2011 MAP scores. To maintain confidentiality, I would ask that a member of school personnel compile the MAP scores for the students who have permission to participate, with them again only being identifiable by their assigned ID number, so that their MAP scores can be linked to their survey responses.

If you are kind enough to allow me to conduct my study in your school, I would then contact you to determine the most convenient dates and times for your staff and students, and to discuss my study in further detail.

If you have any questions please feel free to call or email either myself or my university supervisor. Our contact information is as follows:

Anna Dechant:

E-mail: aadechant@gmail.com,

Phone: 785-735-4609

Dr. Janett Naylor:

E-mail: jmnaylor@fhsu.edu

Phone: 785-628-5857

If you decide to allow me to recruit students from your school and conduct my study within your school I ask that you sign on the appropriate line below. If you decide otherwise I ask that you sign the line indicating that you have not given permission for me to recruit students from your school and/or conduct my study within your school. Please use the stamped envelope included to return this letter. Thank you for your time and consideration.

Anna Dechant

(I give my permission)

(Date)

(I do not give permission)

(Date)

APPENDIX D

Teacher Letter

Dear Mrs. Lee/Mrs. Bryant/Mrs. Beilman/Mrs. Smith,

My name is Anna Dechant and I am a graduate student at Fort Hays State University. Part of my degree requires that I conduct a research study, and I am writing to you to ask your permission to allow me to recruit students from your classroom/homeroom, and use a small amount of class time to conduct the study.

The purpose of my study is to better understand how age, friendship, and motivation to learn can affect academic achievement/performance in school. My proposed plan for conducting my study, should you allow it, is to have the students complete a 15-20 minute survey during their designated computer class time. I have chosen this method in an effort to ensure that the students' privacy be maintained to the greatest extent possible. Further, there is minimal risk associated with participation in my study, and no deception is involved. In addition, my hope is to have the students use randomly assigned ID numbers as their only means of identification when participating in the study, that way their names would be in no way associated with their responses.

I have spoken with both the Superintendent and the principal of your school, and they have given permission for me to recruit students and conduct my study both within the district and within your school. However, you also get to choose whether or not this is something you are willing to let me do, for students would miss some instruction time, and I may ask that you assist in the recruitment of students – i.e., collecting consent forms as students return them, and potentially assisting in the administration of the survey. If you are kind enough to allow me to recruit your students and conduct my study during class time, I would then contact you to determine the most convenient dates and times, and to discuss my study in further detail and answer any questions you may have.

If you have any questions please feel free to call or email either myself or my university supervisor. Our contact information is as follows:

Anna Dechant:

E-mail: aadechant@gmail.com,

Phone: 785-735-4609

Dr. Janett Naylor:

E-mail: jmnaylor@fhsu.edu

Phone: 785-628-5857

If you decide to allow me to recruit students from your classroom/homeroom and allow me to conduct my study during class time, I ask that you sign on the appropriate line below. If you decide otherwise, I ask that you sign the line indicating that you are not giving permission. Please use the stamped envelope included to return this letter. Thank you for your time and consideration.

Anna Dechant

(I give my permission)

(I do not give permission)

(Date)

(Date)

APPENDIX E

Parent/Student Recruitment Letter

(Date)

Dear Parent/Guardian,

My name is Anna Dechant and I am a graduate student at Fort Hays State University. As part of my degree I have to do a research study, and I am writing to you to ask you to allow your child to be a part of my study. Your child's principal is letting me to do my study during school hours, so your child will not have to do any of the study outside of school. If you allow your child to be a part of my study, your child will also be able to decide whether he or she would like to do it. There are no consequences if you decide that you do not want your child to be a part of the study.

The goal of my study is to look at how age, friendship, and motivation affect how children do in school. Attached to this letter is a consent form that has more information about my study, including what kinds of questions your child will answer, how his or her information will be kept safe, and the risks that are part of participating in the study. After reading the consent form, if you have any questions please call or email either myself or the FHSU faculty member who is overseeing my study. My contact information and my supervisor's contact information are:

Anna Dechant:

Phone: 785-735-4609

Email: aadechant@gmail.com

Dr. Janett Naylor

Phone: 785-628-5857

Email: jmnaylor@fhsu.edu

Because it is your choice if your child is or is not a part of my study, I ask that you please read the consent form carefully.

If you decide to let your child to be a part of my study, please sign that you "GIVE CONSENT" and return the consent form to your teacher, by (date).

If you do not want your child to be a part of my study please sign that you "DO NOT GIVE CONSENT", and return the form to Mrs. Lee by (date).

Thank you for your time and help.

Anna Dechant

APPENDIX F

Post Survey/Debriefing Letter

(Date)

Dear Parent/Guardian,

Today your child participated in my research project. I want to thank you again for letting him/her do so. While the survey involved very little risk, your child may have felt uncomfortable answering the questions about his/her friendship. If you notice that taking the survey has caused your child to become very upset or sad, you can seek help from your child's school counselor, primary care physician or other medical professional, or contact the Kelly center at 785-628-3478 to get information about others who can be of help. Please also contact myself or my university supervisor to report any negative effects your child experienced as a result of participating in my project. Our contact info is:

Anna Dechant:

Phone: 785-735-4609

Email: aadechant@gmail.com

Dr. Janett Naylor

Phone: 785-628-5857

Email: jmnaylor@fhsu.edu

Thank You,

Anna Dechant, FHSU Graduate Student

APPENDIX G

Parental Consent Form

CONSENT TO PARTICIPATE IN RESEARCH

Department of Psychology, Fort Hays State University

Study Title: Influence of Friendship on Motivation and Academic Achievement

Name of Researcher: Anna Dechant

Contact Information: aadechant@gmail.com, 785-735-4609

Name of Faculty Supervisor: Dr. Janett Naylor

Contact Information: jmnaylor@fhsu.edu, 785-628-5857

You are being asked to allow your child to participate in a research study. Before you give permission, it is important that you read the following information and ask as many questions as you need to be sure you understand what your child will be asked to do. It is your choice whether or not your child will participate.

Your decision whether or not to allow your child to be part of the study will have no effect on benefits or services to which you are otherwise entitled, your child's right to a free appropriate public education, or the quality of your child's education. Please ask questions if there is anything you do not understand.

What is the purpose of this study?

The purpose of the study is to look at how age, friendship, and motivation to learn can affect how students do in school. Research has shown that good friendships can help students get good grades, which can help them do well in school, and become successful as adults.

What does this study involve?

If you let your child to be a part of the study, **your child** will be asked to answer some questions. The first questions will be demographic information. A definition of friendship will then be given and your child will pick a friend that fits that definition. He/she will answer questions about that friend, and then answer questions about his/her own motivation to learn and do school work. Your child will take the survey during his/her computer class and it should take no longer than 15-20 minutes. Additionally, your child's MAP (Measure of Academic Performance) scores for Reading and Math for the Fall 2011 will be used. However, the scores will in no way be connected with student names, but linked with student ID numbers. None of the questionnaires used in this study are experimental. The only experimental part of this project is the gathering of information for study.

Are there any benefits from participating in this study?

There will be no direct benefits to you or your child if you let your child to be a part of the study. However, your child's participation will help us learn more about how friends can affect motivation and how well a student does in school.

Will you be paid or receive anything to participate in this study?

You will not be paid or receive anything for letting your child be part of this study.

What about the costs of this study?

There are no costs for participating in this study other than your child's time.

What are the risks involved with being enrolled in this study?

Being a part of this project is not likely to cause harm to your child. However, your child may feel uncomfortable answering questions about his/her friendship, or may become upset when trying to answer the questions. To help with this, I will tell your child that he/she can raise his/her hand to stop participating, without any punishment, and that his/her answers to the questions will be kept private. If your child becomes upset, help can be found by speaking to the school counselor or other health professional.

How will your child's privacy be protected?

The examiner will not have access to information connecting student names and the random ID numbers that will be assigned to each student, and MAP scores will be given to the examiner by school personnel. The data from the study will be gathered only for research and will be used to compare and study connections between answers and scores. The results of the study will be reported in the examiner's thesis, and may be presented at meetings or published in papers.

Efforts will be made to protect the identities of the participants and the privacy of the research data used in this study. A different computer activity will be available for students who are not a part of the study so that is not known who is and is not participating, and your child's data will be identified by a random ID number rather than name, so that student names will in no way be connected with student answers. There will be no hard copies of your child's answers and the results will be stored in a computer file, on a password protected computer. Any personal identifying information, such as consent forms, will be kept separately in a locked box and will be shredded after 5 years. Only the examiner and faculty supervisor will have access to the computer data and data in the locked box. Data will be kept for as long as it takes for the examiner to finish his or her thesis and will be destroyed at that time. Access to all data will be limited to the research.

Other important items you should know:

- **Withdrawal from the study:** If you decide to let your child be a part of the study, you are free to take back your permission and stop participation at any time and without any consequences.

- **Funding:** There is no outside funding for this research project.

If your child reports abuse during the study, the examiner will have to report it.

Whom should you call with questions about this study?

Questions about this study may be directed to the researcher in charge of this study: Anna Dechant at (785) 735-4609, or to Dr. Janett Naylor, University Supervisor, at (785) 628-5857.

If you have questions, concerns, or suggestions about human research at FHSU, you may call the Office of Scholarship and Sponsored Projects at FHSU (785) 628-4349 during normal business hours.

CONSENT

I have read the above information about *The Influence of Friendship on Motivation and Academic Achievement* and have been given a chance to ask questions. Please sign on the appropriate line below stating whether you GIVE CONSENT to allow your child to be a part of this study, or if you DO NOT GIVE CONSENT for your child to be a part of this study.

I GIVE CONSENT for _____ to be a part of this study.

Name of Child

Parent or Legal Guardian Signature

Date

I DO NOT GIVE CONSENT for _____ to be a part of this study.

Name of Child

Parent or Legal Guardian Signature

Date

APPENDIX H
Child Assent Form

*Fort Hays State University
Department of Psychology*

Assent to participate in Research

(Influence of Friendship on Motivation and Academic Achievement)

Investigators: My name is Anna Dechant and I am a student at Fort Hays State University. I am working on a project that will help me graduate.

Purpose and Description of the Study: I'm asking you and the other members of your class to take part in a project that will help me learn more about what friendships are like and if your friendships help you learn and the kinds of things you do at school. If you decide to participate, I will ask you to think about someone who is your friend and then ask you questions about your friendship, and then ask you some questions about school and how you like to learn. The survey will only take you about 15-20 minutes to complete, but you may take as much time as you need.

Risks or Discomforts: I think that you will enjoy participating in this project, but sometimes it might be hard to answer personal questions about yourself or your friend(s), and the questions might make you feel uncomfortable, sad, or even a little bit upset. It is okay if you begin to feel this way, you can always take a break from the questions for a few minutes, or you can stop taking the survey if you feel too uncomfortable or if you become too sad or upset.

Confidentiality: You are going to answer all of the questions on a computer. Instead of giving your name you will give a number that has been randomly assigned to you so that I won't be able to tell who decided to be a part of the project, and so that your answers are anonymous. The answers you give will be saved in a computer file and no one else will look at them other than myself and my teacher who is helping me with this project.

Voluntary Nature of Participation: Your mother/father/guardian has said it is O.K. if you are a part of the project, but you do not have to participate unless you want to. Participating in the project is up to you. No one will be upset with you or give you a bad grade if you decide that you do not want to participate. You can always change your mind and stop participating at any time.

Questions about the Study: If you have any questions about the project before, during or after the project you should ask them. If you would like to talk to your parents before you decide if you would like to participate in the project you can do so.

Please mark one of the choices below to tell us what you want to do:

_____ No, I do not want to be a part of this project

_____ Yes, I do want to be a part of this project

APPENDIX I

Demographics

Demographics

Student ID #: _____

Age: _____

Grade: (choose one)

5th

8th

Gender: (choose one)

Male

Female

Ethnicity: (choose one)

Caucasian

Hispanic

African American

Other

APPENDIX J

Friendship Description

Friendship Description

Please read the definition of friendship given below.

Friendship: A relationship between two people who have chosen to be friends with each other and who would both agree when asked that the other is their friend, who are equals (one friend does not try to control the other), and who care about each other and want the other to be happy and healthy.

Pick one friend of yours with whom you feel like you have a friendship that sounds most like the definition given. The person you choose might be someone you consider your “best friend”. Give the initials of this friend, and answer the following questions based on your friendship with this chosen friend.

Friends' Initials: _____

How long have you been friends? (choose one)

Less than 1 year

1 year

2 years

3 years

4 or more years

How much time do you spend with this friend outside of school?

1 hour or less

2-3 hours

4-5 hours

6 hours or more

On a scale of 1-5, how satisfied are you with your friendship with this friend? (choose one)

1 = Not Satisfied 2 = A little satisfied 3=Unsure 4 = Satisfied 5=Very Satisfied

APPENDIX K

Friendship Qualities Scale

Friendship Qualities Scale

Instructions: I want to ask some questions just about you and the friend you chose earlier so I can know what your friend is like. I have some sentences that I would like you to read. Please tell me whether each sentence describes your friendship or not. Please rate your friendship on how it is currently, not how you want it to be. Some of the sentences might be really true for your friendship while other sentences might not be very true for your friendship. I simply want you to read the sentence and tell me how true the sentence is for your friendship. Remember, there are no right or wrong ways to answer these questions, and you can use any of the numbers on the scale.

After each sentence there is a scale that goes from 1 to 5.

"1" means the sentence is probably not true for your friendship,

"2" means that it might be true,

"3" means that it is usually true,

"4" means that it is very true,

"5" means that it is really true for your friendship.

Click the bubble next to the number on the scale that is best for you. Be sure to read carefully and answer as honestly as possible

1. My friend and I spend all of our free time together.

Not true

Might be true

Usually true

Very true

Really true

2. My friend thinks of fun things for us to do together.

Not true

Might be true

Usually true

Very true

Really true

3. *If other kids were bothering me, my friend would help me.*

Not true
Might be true
Usually true
Very true
Really true

4. *My friend helps me when I am having trouble with something.*

Not true
Might be true
Usually true
Very true
Really true

5. *If my friend had to move away I would miss him/her.*

Not true
Might be true
Usually true
Very true
Really true

6. *When I do a good job at something, my friend is happy for me.*

Not true
Might be true
Usually true
Very true
Really true

7. *Sometimes my friend does things for me, or makes me feel special.*

Not true
Might be true
Usually true
Very true
Really true

8. *I can get into fights with my friend.*

Not true
Might be true
Usually true
Very true
Really true

9. *My friend would stick up for me if another kid was causing me trouble.*

Not true
Might be true
Usually true
Very true
Really true

10. *If I have a problem at school or at home, I can talk to my friend about it.*

Not true
Might be true
Usually true
Very true
Really true

11. *My friend can bug me or annoy me even though I ask him/her not to.*

Not true
Might be true
Usually true
Very true
Really true

12. *If I forgot my lunch or needed a little money, my friend would loan it to me.*

Not true
Might be true
Usually true
Very true
Really true

13. If I said I was sorry after I had a fight with my friend, he/she would still stay mad at me.

Not true
Might be true
Usually true
Very true
Really true

14. My friend and I go to each other's houses after school and on weekends.

Not true
Might be true
Usually true
Very true
Really true

15. Sometimes my friend and I just sit around and talk about things like school, sports, and things we like.

Not true
Might be true
Usually true
Very true
Really true

16. My friend would help me if I needed it.

Not true
Might be true
Usually true
Very true
Really true

17. If there is something bothering me, I can tell my friend about it even if it is something I cannot tell to other people.

Not true
Might be true
Usually true
Very true
Really true

18. If my friend or I do something that bothers the other one of us, we can make up easily.

Not true
Might be true
Usually true
Very true
Really true

19. My friend and I can argue a lot.

Not true
Might be true
Usually true
Very true
Really true

20. My friend and I disagree about many things.

Not true
Might be true
Usually true
Very true
Really true

21. If my friend and I have a fight or argument, we can say "I'm sorry" and everything will be alright.

Not true
Might be true
Usually true
Very true
Really true

22. I feel happy when I am with my friend.

Not true
Might be true
Usually true
Very true
Really true

23. *I think about my friend even when my friend is not around.*

Not true

Might be true

Usually true

Very true

Really truly

APPENDIX L

Intrinsic versus Extrinsic Motivation Scale

Intrinsic versus Extrinsic Motivation Scale

Instructions: I am interested in your opinions about school. This is not a test and there are no right or wrong answers. All of your answers will be kept private. I will not show them to your teachers, your parents, or anybody else.

Read the questions and decide how true each is *for you*. You can decide that it is “not like me at all,” “a little like me,” “sort of like me,” “a lot like me,” or “exactly like me.”

Once you decide how true the sentence is for you, click the bubble next to whichever best describes how you feel.

1. I like hard work because it's a challenge.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

2. I like to have the teacher help me with my schoolwork.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

3. I ask questions in class because I want to learn new things.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

4. I like to try to figure out how to do school assignments on my own.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

5. *I work on problems because I'm supposed to.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

6. *I don't like to figure out difficult problems.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

7. *I like to learn as much as I can in school.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

8. *When I make a mistake I like to ask the teacher how to get the right answer.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

9. *When I don't understand something right away I like to try to figure it out by myself.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

10. I do extra projects because I can learn about things that interest me.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

11. If I get stuck on a problem I ask the teacher for help.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

12. I like to go on to new work that's at a more difficult level.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

13. I don't like difficult schoolwork because I have to work too hard.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

14. I do my schoolwork because the teacher tells me to.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

15. I read things because I am interested in the subject.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

16. I like easy work that I am sure I can do.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

17. I like school subjects that make me think pretty hard and figure things out.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

18. When I make a mistake I like to figure out the right answer by myself.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

19. I read things because the teacher wants me to.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

20. I like the teacher to help me plan what to do next.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

21. I like difficult problems because I enjoy trying to figure them out.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

22. I do my schoolwork to find out about a lot of things I've been wanting to know.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

23. I like to stick to the assignments that are pretty easy to do.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

24. I work really hard because I really like to learn new things.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

25. *If I get stuck on a problem I keep trying to figure out the problem on my own.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

26. *I like school subjects where it's pretty easy to just learn the answers.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

27. *I like to ask the teacher how school assignments should be done.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

28. *I like difficult schoolwork because I find it more interesting.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

29. *I like to do my schoolwork without help.*

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me

30. I work on problems to learn how to solve them.

Not like me at all
A little like me
Sort of like me
A lot like me
Exactly like me